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An economic study of the dehydration of sweet potatoes for feed in Louisiana

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TABLE OF CONTENTS

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INTRODUCTION

More than 50 sweet potato dehydration plants have been established in Louisiana in the last three years. These dehydrators enable farmers, shippers, and processors to dispose of those sweet potatoes that are undesirable for table stock or canning by converting them into a good carbohydrate feed for livestock. Dehydrated sweet potatoes compare favorably with corn in feeding value, are generally palatable to animals, and have desirable keeping qualities.

Market outlets for the entire crop is an important factor in the financial success of the sweet potato industry in Louisiana. A dependable outlet for low-grade sweet potatoes rests to a great extent upon the ability of dehydration plants to produce a feed that will compete in price with feeds of comparable feeding value.

Purpose of Study

This report presents an economic analysis of sweet potato dehydration operations in Louisiana for the 1946-47 and 1947-48 seasons. The extent of sweet potato dehydration in the state, practices of dehydrator operators, processing costs and returns, factors affecting dehydration costs, and comparative costs and feeding values of dehydrated sweet potatoes and corn are discussed. Such information should lead to a better understanding of the position of dehydration plants in the Louisiana sweet potato industry and provide a basis for making decisions by those interested in the continued prosperity of the industry.

Sources of Information

The detailed analysis of sweet potato dehydration operations presented in this study is based on the records of 31 dehydration plants in 1947 and 21 in 1948. Records were obtained from all plants in the state in 1947; however, many plants had had only limited experience and only about half of the 1946-47 records were used in analysis. The second year's study was made to verify costs and other results of the analysis made for the 1946-47 season.

The authors wish to express their appreciation to Professors B. M. Gile, Julian C. Miller, Wiley D. Poole, and F. D. Barlow of the Louisiana Agricultural Experiment Station for their many helpful suggestions in the preparation of this report. Mr. Ford, who conducted the initial phases of this study, is now Associate Agricultural Economist of the Georgia Agricultural Experiment Station.

Other data presented in this report are from published statistics, Experiment Station publications, and interviews with members of the sweet potato industry in the state.

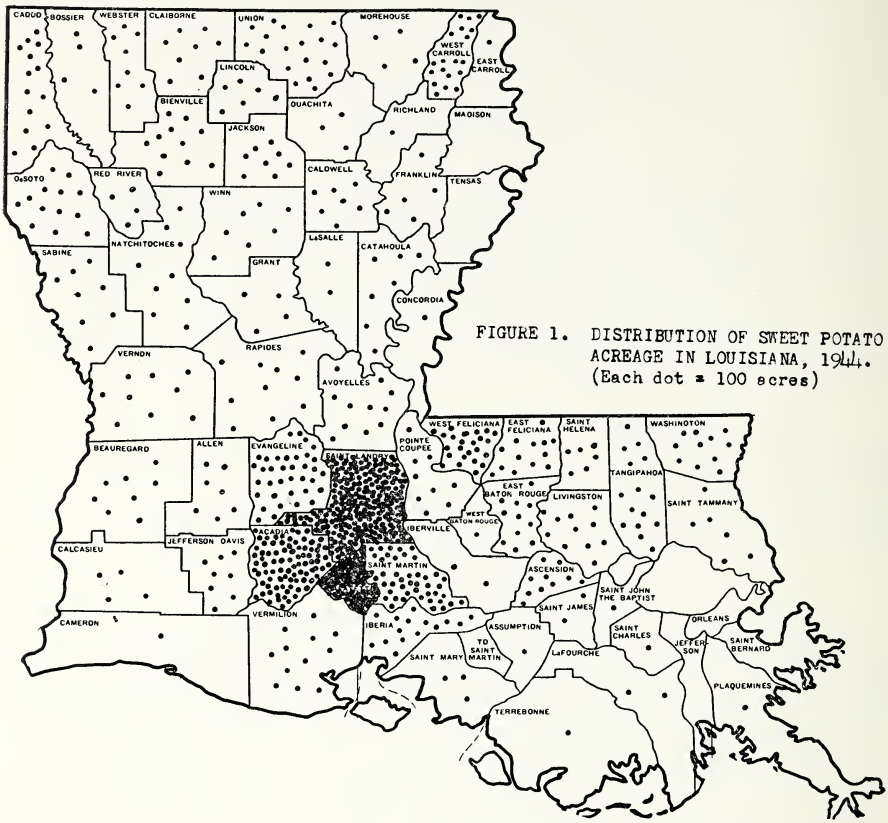

FIGURE 1. DISTRIBUTION OF SWEET POTATO ACREAGE IN LOUISIANA, 1944. (Each dot = 100 acres)

NUMBER AND LOCATION OF DEHYDRATION PLANTS

There were 62 dehydration plants in Louisiana in 1948 (Figure 2). Fifty-two of these were sweet potato processing plants, eight were exclusively for forage crops, one was used to dry tung-oil mill waste, and one was used to dehydrate sea food packing plant waste. Five sweet potato plants were also equipped to handle forage crops. Fifty-four dehydrators processed sweet potatoes in the 1946-47 season and 47 plants were in operation in 1947-48. Seven sweet potato dehydrating plants changed ownership in 1947 and 1948; however, two of these were purchased by Louisiana firms and continued operating in the state.

Twenty-two sweet potato dehydrating plants, or more than 40 per cent of the state's total, are located in the South Louisiana com-

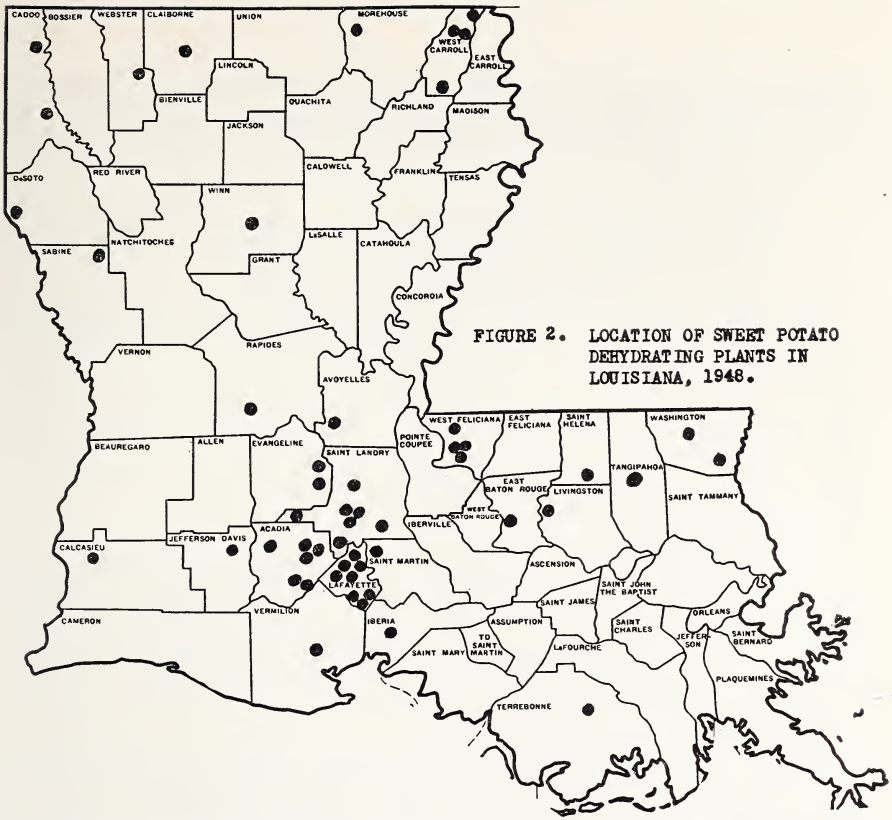

FIGURE 2. LOCATION OF SWEET POTATO DEHYDRATING PLANTS IN LOUISIANA, 1948.

TABLE 1. Number and Location of Sweet Potato Dehydrating Plants in Louisiana, 1948

Location	Number of plants	Location	Number of plants
Arnaudville	1	Independence	1
Bains	1	Kilbourne	1
Baptist Academy	1	Lafayette	4
Baton Rouge	1	Lawtell	1
Belcher	1	Lewisburg	1
Bogalusa	1	Logansport*	1
Breaux Bridge	1	Minden	1
Bunkie	1	Montpelier	1
Cankton	1	New Iberia	1
Carencro	2	Oak Grove	2
Chataignier	1	Opelousas*	1
Church Point	3	Pleasant Hill	1
Denham Springs	1	Rayne	2
DeQuincy	1	Scott*	1
Duson	1	Shreveport	1
Elton	1	St. Francisville	3
Epps	1	Sunset	2
Erath	1	Ville Platte	1
Eunice	1	Vidrine	1
Franklinton*	1	Winnfield	1
Glenmora	1		
Homer	1		
Houma	1		

*The dehydrating plants at Franklinton and Logansport were sold in 1948 and will not operate during the 1948-49 season. Plants were established at Opelousas and Scott after the close of the 1947-48 operating season and will process sweet potatoes in the 1948-49 season.

mercial producing area (St. Landry, Acadia, and Lafayette Parishes). The remaining sweet potato dehydrators are fairly well distributed over the state. Forage dehydrators are located mainly in the Red River Delta Area.

DEHYDRATING OPERATIONS AND PRACTICES

Volume and Value of Production

Nine per cent of the 1946 Louisiana sweet potato crop and 10 per cent of the 1947 crop were dehydrated for feed (Table 2). About 974,000 bushels of sweet potatoes from the 1946 crop and 745,000 bushels from the 1947 crop were processed into 170,000 and 130,000 hundredweights of feed, respectively. The smaller volume dehydrated in the 1947-48 season was caused in part by a decrease in size of the total sweet potato crop from 10,800,000 bushels in 1946 to 7,470,000 bushels in 1947.

The estimated gross value of the feed obtained by dehydrating sweet potatoes amounted to $466,000 in the 1946-47 season and $442,000 in the 1947-48 season. The value of the 1947-48 season's production was proportionately higher than for the preceding season because of an increased demand for sweet potato feed and a smaller volume with which to supply it.

Sweet potatoes dehydrated are usually culls and weevil damaged potatoes mainly unsalable by farmers, shippers, and canners. Cannery waste is an important source of raw material for some dehydrators. A large proportion of the sweet potatoes processed would normally be lost because of decay, or rodent and weevil damage. Thus, dehydration has afforded the industry an income from a portion of the crop which often has proved troublesome and expensive to dispose of in the past. This new source of high quality

TABLE 2. Extent of Sweet Potato Dehydration in Louisiana, 1946 and 1947 Crops

	1946	1947
Total production of sweet potatoes in Louisiana (bushels)	10,800,000	7,470,000
Sweet potatoes dehydrated (bushels)	974,000	745,000
Per cent of total crop dehydrated	9	10
Dry material obtained (cwt.)	170,000	130,000
Estimated gross value (dollars)	466,000	442,000

carbohydrate feed has helped materially in reducing the deficit of feeds required in the state for its growing dairy and livestock industries. In addition, dehydrators aid greatly in the sweet potato weevil control program.

Types and Sizes of Plants

The rated productive capacity of dehydration units in Louisiana ranges from 300 to 4,000 pounds of dehydrated material per hour.

All but seven of the units operating in the 1946-47 season had capacities of 600 to 800 pounds per hour. Two units had capacities of 2,500 pounds per hour, one was rated at 300 pounds, and another had a 450-pound capacity. The other three units had capacities of 1,000 to 2,000 pounds per hour. A plant having a productive capacity of approximately 4,000 pounds per hour was established in 1948. These very small and very large units were not included in the study since they were insufficient in number to permit an accurate analysis and appraisal of their operations.

Three of the plants studied in each of the two seasons were of the twin-unit type, having batteries of two dehydration units of the same type and size. The remainder of plants studied had single dehydration units of the same capacity. The dehydration units were powered by either electric motors or internal combustion engines run on natural gas or butane. Some of the plants used natural gas for furnace heat while others used butane or fuel oil, depending upon the availability of a particular type in the section where located.

Capital Investment in Dehydration Plants

The average capital investment per plant was $8,962 in 1946-47 and $8,241 in 1947-48 (Table 3). These figures represent an average of the beginning and ending values of buildings, land, and plant equipment for the two years. The lower average investment in 1947-48 mainly was because of the subtraction of two years' depreciation. The 1946-47 investment reflects depreciation for only one year.

The original cost was about the same for the plants studied in the two years, averaging $9,561 in 1946-47 and $9,977 in 1947-48. Plants producing more than 6,000 hundredweight had somewhat higher initial capital outlays because three of them were twin-unit plants.

Dehydration equipment and buildings constituted the major items of capital investment, amounting to about 69 per cent and 30 per cent, respectively, of the initial capital outlay. Plant equipment consists of the dehydration unit, scales, conveyors, washers, and other specialized equipment; however, some plants have little other than the dehydration unit and scales. The dehydration unit was the most expensive item of plant equipment, amounting in most cases to more than 90 per cent of the total equipment investment. Buildings generally were of adequate size to house the dehydration unit and provide storage space for dehydrated material.

Usually only a fraction of an acre of land was required for plant purposes and the investment in land amounted to only about one per cent of the total capital required to establish a dehydration plant.

TABLE 3. Original Cost and Average Capital Investment, Louisiana Dehydrating Plants, 1946-47 and 1947-48 Seasons*

	1946-47								1947-48***	
	Plants dehydrating**						All plants		All plants	
	Less than 2,500 cwt.		2,500-5,999 cwt.		More than 6,000 cwt.					
	Original cost	Value	Original cost	Value	Original cost	Value	Original cost	Value	Original cost	Value
	(Dollars per plant)									
Buildings	2,233	2,181	3,340	3,222	3,485	3,370	2,856	2,774	2,973	2,694
Land	104	104	100	100	113	113	106	106	114	114
Plant equipment	6,005	5,585	6,138	5,564	7,618	6,995	6,599	6,082	6,890	5,433
Total	8,342	7,870	9,578	8,886	11,216	10,478	9,561	8,962	9,977	8,241
Average production per plant (cwt.)	1,064		4,191		9,747		4,649		4,510	
Capital investment per cwt. (dollars)	7.40		2.12		0.98		1.93		1.83	
Number of plants	15		5		11		31		21	

*Average capital investment reflects one year's depreciation in 1946-47 and two years' depreciation in 1947-48.

**The original cost of plants producing more than 6,000 hundredweight was greater, mainly because three of these plants had two dehydration units.

***Similar relationships to those existing between plants producing different volumes in 1946-47 were apparent in 1947-48.

Methods of Obtaining Raw Product

Four methods are used by dehydrator operators to obtain sweet potatoes for processing (Table 4). These are: (1) sweet potatoes grown by the owner or company operating the dehydrator; (2) packing shed and cannery salvage operations—several dehydrators are operated by sweet potato shippers and canners who dehydrate potatoes not suitable for shipping or processing, or utilize cannery peelings and waste; (3) cash purchases of low-grade sweet potatoes from farmers and others for dehydration; (4) custom work done on either a toll or cash basis, generally for farmers. Practically all dehydrators used two or more of the above methods to secure raw material.

The greatest volume of processing done by dehydrators in the two years studied, 1946-47 and 1947-48, was on a cash-custom basis, amounting to 58.8 and 62.2 per cent, respectively, of the total volume processed by dehydrators. Cash-custom work usually cost the farmer one dollar per hundredweight of dry matter in addition to the cost of the sack, although a few dehydrators charged more. A relatively small proportion of sweet potatoes processed was on a toll-custom basis. Dehydrators usually retained one half of the dry matter as toll for work done on this basis. A few plants charged as toll as little as one-third of the dry matter processed.

Nine of the 31 plants studied in 1946-47 and 11 of the 21 plants in 1947-48 purchased low-grade sweet potatoes for dehydration. Cash purchases accounted for 18.4 per cent of the total volume processed

TABLE 4. Methods of Obtaining Sweet Potatoes for Processing, Louisiana Dehydrating Plants, 1946-47 and 1947-48 Seasons*

Methods of obtaining raw product	1946-47		1947-48	
	Number of plants	Per cent of total volume processed	Number of plants	Per cent of total volume processed
Company grown	6	2.7	5	1.5
Packing shed and cannery salvage	13	11.8	12	9.2
Purchases for dehydration	9	18.4	11	15.9
Custom work:**				
Toll	7	8.3	15	11.2
Cash	29	58.8	21	62.2
Total	31***	100.0	21***	100.0
Average volume dry material processed per plant (cwt.)	4,649		4,509	

*Based on operations of 31 plants in 1946 and 21 plants in 1947.

**The plants usually charged one half of the dry material for toll work and one dollar per cwt. for work done on a cash basis.

***Most plants used more than one method of obtaining raw sweet potatoes for processing.

in 1946-47 and 15.9 per cent in 1947-48. Thirteen plants in 1946-47 and 12 plants in 1947-48 dehydrated sweet potatoes salvaged from packing shed and cannery operations of shippers and canners. While sweet potatoes from this source constituted a relatively small part of the total volume processed, shippers and canners were able to solve a troublesome disposal problem by dehyrating sweet potatoes not suitable for shipping or canning. Company-grown sweet potatoes were of minor importance in the total volume processed. Only 6 of the plants studied in 1946-47 and 5 in 1947-48 grew sweet potatoes for dehydration, mostly in small quantities.

Disposal of Dehydrated Product

Farmers retained 64.0 per cent of the total output of dehydrators in 1946-47 and 68.1 per cent in 1947-48 (Table 5). The farmers' share of dehydrated sweet potatoes came from cash-custom and toll-custom

TABLE 5. Proportion of Dehydrated Sweet Potatoes Retained by Farmers and Plant Operators, 1946-47 and 1947-48 Seasons

	1946-47	1947-48
	(Per cent of total dehydrated)	
Farmers' share*	64.0	68.1
Plants' share**	36.0	31.9
Total	100.0	100.0

*Farmers' share comes from cash-custom and toll-custom operations. In both years cash-custom work made up the bulk of the farm share.

**Plants' share comes from packing shed and cannery salvage operations, purchases for dehydration, dehydration of company grown sweet potatoes, and toll-custom work.

dehydrator operations. In both years, cash-custom work made up the bulk of the farm share. Most farmers used their dehydrated sweet potatoes on the farm to feed their own livestock. Usually milk cows and beef cattle received the largest amounts; however, many farmers fed the dehydrated material to practically all classes of farm animals, including hogs, chickens, and work stock.

The plant share represented sweet potatoes salvaged from shipping operations, purchased for dehydration or company grown, and a portion of sweet potatoes processed on a toll basis. The plants studied sold the largest part of their share in both 1946-47 and 1947-48. Sales amounted to 57.6 per cent of the plant share of sweet potatoes processed in 1946-47 and 87.3 per cent in 1947-48 (Table 6). Farmers, mainly dairymen, were the main buyers of sweet potato feed, purchasing directly from dehydrators 42.0 per cent of the plant share in 1946-47 and 48.6 per cent in 1947-48.

TABLE 6. Disposal of Plant Share of Sweet Potatoes Processed by Louisiana Dehydrating Plants, 1946-47 and 1947-48 Seasons

Method of Disposal	1946-47	1947-48
	Per cent of plant share	
Sales to:		
Farmers	42.0	48.6
Retailers	1.8	—
Wholesalers	3.2	25.8
Feed mills	7.7	7.5
Other	2.9	5.4
Total sales	57.6	87.3
Plant use*	16.3	12.7
Inventory at end of season	26.1	0
Total plant share	100.0	100.0
Average value of plant share (dollars per cwt.)	2.74	3.40

*A few plants were operated by dairymen or livestock producers who used part or all of the feed produced in their dehydrators for their own purposes.

The demand for dehydrated sweet potatoes by dairymen and feed dealers was greater in 1947-48 than in the preceding year. This is evidenced by the fact that the plants studied in 1946-47 had on hand at the end of the season an inventory of 26.1 per cent of the total plant share, while in 1947-48 all of the plant share was disposed of. Practically all plant managers reported that their supply of dehydrated sweet potatoes was much smaller than the demand in the 1947-48 season. Largely because of this increased demand, the average price received by plants in 1947-48 was $3.40 per hundredweight compared with $2.74 in 1946-47.

COSTS AND RETURNS FROM DEHYDRATION OPERATIONS

Costs

Total costs of operating dehydration plants averaged $6,924 in 1946-47 and $6,783 in 1947-48 (Table 7). Plant costs were divided into 5 categories: (1) general overhead, consisting of depreciation and other overhead costs, such as insurance, taxes, and office expenses; (2) operating costs, which includes labor, fuel for furnace heat, power, repairs, and other incidental operating expenses; (3) sweet potatoes purchased; (4) sacks purchased; and (5) interest.

Depreciation was the major cost item included under "general overhead." Depreciation was computed by the straight-line method and was based on the estimated life of plant buildings and equipment. Equipment depreciation figured largely in total plant depreciation since the average estimated length of life of the dehydration unit was only 7 years. The capital investment in buildings was considerably smaller than the investment in equipment, and the estimated length of life of buildings was 17 years. Since there was little difference in capital investment in plants producing small and large

TABLE 7. Costs and Returns From Dehydration Operations, Louisiana Dehydrating Plants, 1946-47 and 1947-48 Seasons

Items of costs and returns	1946-47				1947-48			
	Volume dehydrated				Volume dehydrated			
	All plants	Less than 2500 cwt.	2500-5999 cwt.	More than 6000 cwt.	All plants	Less than 2500 cwt.	2500-5999 cwt.	More than 6000 cwt.
	(Average dollars per plant)							
Returns:								
Value of plant share	4,539	1,221	3,939	9,336	4,891	1,725	6,221	7,367
Cash charges	2,760	598	2,436	5,855	3,076	1,103	2,171	6,108
Gross income	7,299	1,819	6,375	15,191	7,967	2,828	8,392	13,475
Costs:								
General overhead								
Depreciation	1,082	945	1,034	1,291	1,143	1,002	1,156	1,292
Other	533	316	493	846	562	342	590	770
Total	1,615	1,261	1,527	2,137	1,705	1,344	1,746	2,062
Operating costs:								
Labor	1,476	328	1,133	3,198	1,242	440	995	2,370
Fuel for heat	914	256	862	1,834	766	428	1,037	919
Power	125	60	160	198	124	69	192	127
Repairs	—	—	—	—	282	220	245	384
Other	41	6	—	109	35	29	46	31
Total	2,556	650	2,155	5,339	2,449	1,186	2,515	3,831
Sweet potatoes purchased	1,982	567	1,373	4,190	1,903	603	2,422	2,945
Sacks purchased	323	72	355	651	316	107	408	475
Interest	448	394	444	524	410	380	429	429
Total costs	6,924	2,944	5,854	12,841	6,783	3,620	7,520	9,742
Net income	375	-1,125	521	2,350	1,184	-792	872	3,733
Gain or loss per cwt. (dols.)	0.08	-1.06	0.12	0.24	0.26	-0.48	0.20	0.47
Number of plants	31	15	5	11	21	8	6	7
Cwt. dehydrated per plant	4,649	1,064	4,191	9,747	4,510	1,635	4,290	7,982

volumes, the average total depreciation cost for plants producing the greater volumes was only slightly higher than for plants operating to only fractional capacity. When computed on a per unit of output basis, depreciation cost per hundredweight of dehydrated sweet potatoes was considerably less for plants producing large volumes than for those with small outputs.

Labor was the largest cost incurred in the actual operation of dehydration plants, averaging $1,476 per plant in 1946-47 and $1,242 in 1947-48. Three men were usually required to operate the dehydration unit; however, some plants used only two men while others used four. Labor costs were considerably higher for plants producing large volumes because of the longer period operated during the season.

Fuel costs averaged $914 per plant in 1946-47 and $766 per plant in 1947-48. Plants used natural gas, butane gas, or fuel oil for heat, depending upon the availability of a particular type of fuel in the area. Natural gas was the cheapest fuel used and butane was the highest. The effect of the type of fuel used on fuel costs will be discussed in a subsequent section of this report.

Repair costs were negligible in the 1946-47 season since that year marked the first season's operation for practically all plants. The manufacturer guaranteed the units for a period of 6 months against defective material and workmanship, and as a result, repair costs for the first season's operation were not borne by the dehydrator operator. Repairs necessary to ready equipment for operation during 1947-48 were charged to that season's operation and averaged $282 per plant. Plants processing more than 6,000 hundredweight had somewhat higher repair costs than those processing lesser amounts because a fuller use of equipment resulted in greater upkeep requirements.

The cost of sweet potatoes purchased for dehydration averaged about $8.00 per ton in 1946-47 and $10.00 a ton in 1947-48. These costs include handling and hauling charges as well as the price of the sweet potatoes. Plant managers allotted costs on the same basis for sweet potatoes grown by the plant management and those salvaged from shipping operations. Total costs of sweet potatoes purchased averaged $1,982 per plant in 1946-47 and $1,903 in 1947-48.

Selling costs were small since sales and deliveries were made usually at the dehydration plant. However, if the dehydration industry continues to expand its operations, selling costs may become more important in the future. The costs of sacks for the plant share

of the dehydrated sweet potatoes averaged $323 per plant in 1946-47 and $316 in 1947-48.

Interest was computed at five per cent of the average capital investment of the plants studied, and amounted to $448 per plant in 1946-47 and $410 in 1947-48.

Returns

Gross returns from dehydration operations averaged $7,299 per plant in 1946-47 and $7,967 in 1947-48 (Table 7). The most important source of income was sales and value of feed used by the company of the plant share of sweet potatoes processed. The other source of plant income was charges for cash-custom operations. Total returns exceeded total costs by $375 in 1946-47 and $1,184 in 1947-48.

Net income varied directly with the volume of operations. In both years the income of plants processing the largest volumes exceeded costs by the widest margins. Plants processing less than 2,500 hundredweight of dry material suffered losses amounting to $1,125 in 1946-47 and $792 in 1947-48, while plants processing 6,000 hundredweight or more realized net profits of $2,350 and $3,733, respectively. Although the volume of output was the most important factor affecting net income, it is significant that 15 of the 31 plants studied in 1946-47, and 8 of the 21 studied in 1947-48, processed less than 2,500 hundredweight of feed during the season's operations.

It is apparent that obtaining a large volume of output is a major problem facing many plants. In 1947-48, plants processing 6,000 hundredweight or more realized a net profit of 47 cents per hundredweight of output, while plants processing less than 2,500 hundredweight lost an average of 48 cents per hundredweight. The location with respect to a supply area is an important factor affecting the success of a plant in securing sufficient raw material to operate at or near capacity. Dehydrators located at the fringes of producing areas generally were forced to operate at only fractional capacity. The possibility of dehydrating forage crops to increase the volume of plant operations should not be overlooked in such cases.

Most Profitable Method of Operation

Most plants combined two or more methods of operation during both the 1946-47 and 1947-48 seasons. However, more than 50 per cent of the total volume of sweet potatoes dehydrated in both years was processed on a cash-custom basis. The cash-custom method of operation proved least profitable, returning a net gain of only 1.6 cents per hundredweight processed in 1946-47 and 8.4 cents in 1947-48

(Table 8). Net returns per hundredweight were greater in 1947-48 than in the preceding year because of a higher average charge to farmers for work done on this basis. One advantage to plant operators of cash-custom work is that they do not have to store and sell the dehydrated feed before being paid for their services, as is the case when sweet potatoes are processed on any other basis.

Toll-custom operations were most profitable in 1947-48, while the processing of sweet potatoes purchased by the plants for dehydration returned the largest net gain in 1946-47. However, work done on these bases was relatively small compared to the volume of cash-custom operations. Greater net returns for both toll-custom operations and the processing of sweet potatoes purchased were realized in 1947-48 than in 1946-47. Plants received a larger percentage of sweet potatoes processed on a toll basis in 1947-48, and the value of dehydrated sweet potatoes per hundredweight was higher.

It is possible that operations on a toll basis will increase while cash-custom work will decline, especially if the cash charge per hundredweight to farmers is increased by dehydrating plants. During the past few years of high prices many farmers have had a supply of ready cash with which to purchase supplies or use for other purposes. If prices for farm products decline, farmers may find it more convenient and less money will be involved if they have their sweet potatoes processed for a percentage of the dry material on a toll-custom basis rather than to pay a cash charge.

FACTORS AFFECTING PLANT COSTS

Volume of Production

It was clearly demonstrated by the study of dehydration operations during the 1946-47 and 1947-48 seasons that volume of production was the most important single factor affecting the cost of processing the amount of raw sweet potatoes required to make a 100-pound sack of feed. Although total plant costs were higher for plants processing large volumes, their cost per unit of output was much less than for plants with small volumes. Processing costs in 1946-47 varied from $0.82 per hundredweight for plants processing 6,000 hundredweight or more to $2.16 per hundredweight for plants handling less than 2,500 hundredweight (Table 9). The same relationship between volume and cost existed in 1947-48. Plants producing large volumes had per unit costs of about $0.80 compared with $1.78 for plants producing small amounts. The average cost per hundredweight for all plants was $0.99 in 1946-47 and $1.01 in 1947-48.

Overhead and interest costs per unit of output were affected to a

TABLE 8. Comparison of Costs and Returns of Sweet Potato Dehydrating Plants Obtaining Raw Materials by Different Methods, 1946-47 and 1947-48 Seasons

Item	1946-47			1947-48		
	Method of obtaining raw product			Method of obtaining raw product		
	Toll-custom	Cash-custom	Purchases*	Toll-custom	Cash-custom	Purchases*
Receipts per cwt. of feed:						
Value of plant share	$1.060	$——	$2.740	$1.610	$——	$3.400
Cash charges	——	1.009	——	——	1.096	——
Total receipts	$1.060	$1.009	$2.740	$1.610	$1.096	$3.400
Expenses per cwt. of feed:						
Cost of potatoes**	——	——	1.340	——	——	1.610
Sacks	——	——	.188	——	——	.220
Overhead	.348	.348	.348	.378	.378	.378
Operating	.549	.549	.549	.543	.543	.543
Interest	.096	.096	.096	.091	.091	.091
Total expenses	$0.993	$0.993	$2.521	$1.012	$1.012	$2.842
Net return per cwt.	$0.067	$0.016	$0.219	$0.598	$0.084	$0.558
Per cent of total volume processed***	8.3	58.8	30.2	11.2	62.2	25.1

*Purchases and packing shed salvage operations computed on same basis.

**Ratio of raw product to dry material was 3.15 pounds to 1.

***Small amounts were company-grown. See Table 3.

TABLE 9. Relation of Volume Dehydrated to Overhead and Operating Costs, Louisiana Sweet Potato Dehdyrating Plants, 1946-47 and 1947-48 Seasons

Cost item	1946-47				1947-48			
	Volume dehydrated				Volume dehydrated			
	All plants	Less than 2500 cwt.	2500-5999 cwt.	More than 6000 cwt.	All plants	Less than 2500 cwt.	2500-5999 cwt.	More than 6000 cwt.
	(Average dollars per cwt.)							
General overhead:								
Depreciation	.233	.888	.247	.132	.253	.613	.269	.162
Other	.115	.297	.118	.087	.125	.209	.137	.099
Total	.348	1.185	.365	.219	.378	.822	.406	.261
Operating costs:								
Labor	.317	.308	.270	.328	.275	.269	.232	.297
Fuel for furnace	.197	.240	.206	.188	.170	.263	.242	.115
Power	.027	.056	.038	.021	.028	.041	.045	.016
Repairs	——	——	——	——	.062	.135	.057	.048
Other	.008	.005	.000	.011	.008	.018	.011	.004
Total	.549	.609	.514	.548	.543	.726	.587	.480
Interest	.096	.370	.106	.054	.091	.233	.100	.054
Total costs	.993	2.164	.985	.821	1.012	1.781	1.093	.795
Number of plants	31	15	5	11	21	8	6	7
Cwt. dehydrated per plant	4,649	1,064	4,191	9,747	4,510	1,635	4,290	7,982
Plant investment (dollars per cwt.)	1.93	7.40	2.12	.98	1.83	4.65	2.00	1.09

greater extent by volume of production than were other processing costs. Depreciation, insurance, taxes, etc., were relatively fixed in amount for all plants regardless of production, and consequently were much smaller per unit of output for large producers than for small producers. While averaging about $0.38 per hundredweight for all plants in 1947-48, depreciation and other overhead costs varied from $0.26 per hundredweight for plants producing 6,000 hundredweight and more to $0.82 per hundredweight for plants producing less than 2,500 hundredweight. Interest was of minor importance in total processing costs per hundredweight for plants with large outputs but averaged $0.37 per hundredweight in 1946-47 and $0.23 in 1947-48 for plants producing less than 2,500 hundredweight.

Operating costs, consisting of labor, fuel, power, repairs, and other costs directly related to plant operations, were affected to a lesser extent by volume of production than were overhead costs. However, most items of operating costs varied somewhat with volume of output. Generally, there was a tendency for operating costs, exclusive of labor, to decline as the volume processed increased. Labor costs were highest for plants producing large volumes. Large plants frequently employ more men to operate the dehydration unit than do plants with small output. Operators of the small plants generally performed some of the labor necessary for operation, in addition to their supervisory work.

It appears highly probable that some dehydration plants, especially some of those out of the commercial sweet potato areas, will be forced to discontinue operations unless a volume of raw material sufficient to reduce costs and increase returns can be obtained. Shippers and processors who operate dehydrators in conjunction with packing shed and canning operations are in a relatively better position. Dehydrators in these cases alleviate a troublesome disposal problem and provide a means for an income-producing salvage operation. In addition, these dehydrators may bid for volume from other sources.

Length of Life of Dehydration Unit

Depreciation made up the bulk of overhead costs, and greatest reductions in overhead costs resulted from lower depreciation costs per unit of output. Most plant operators estimated the length of life of their dehydration unit at about 7 years. Because of the high initial cost of the dehydration unit and the relatively short expected life, equipment depreciation constituted the greater part of total plant depreciation. Many dehydrator operators have had insufficient time and experience on which to base their estimates of life expectancy of the dehydration units. The effect on costs of using life

expectancies of 5, 7, and 10 years is shown in Table 10. Since depreciation was computed by the straight-line method, depreciation cost per unit of output decreased as the life expectancy of the unit increased. Conversely, interest which was figured at 5 per cent of the average capital investment each year increased as life expectancy increased. However, because depreciation costs are much greater than interests costs, total processing costs are smaller if the length of life of the dehydration unit is long. In 1947-48, total processing costs averaged $1.090 per hundredweight computed on a 5-year expected life basis, $1.012 on a 7-year basis, and $0.956 on a 10-year basis.

Type of Fuel

The type of fuel burned in dehydrator furnaces had an important effect on the fuel costs of dehydrating sweet potatoes. Natural gas was the most economical furnace fuel, costing much less than fuel oil or butane gas. While the average fuel costs per hundredweight of feed processed amounted to about $0.20 in 1946-47 and to $0.17 in 1947-48, those plants using natural gas had fuel costs of about $0.13 and $0.11, respectively (Table 11).

Next to natural gas, fuel oil was the cheapest fuel used. In 1946-47 and 1947-48, those plants using fuel oil had costs of about $0.22 and $0.28, respectively. Butane was the most expensive fuel, costing users about $0.39 per hundredweight of dry feed in 1946-47 and $0.56 in 1947-48. Considerably higher rates were charged for butane gas in 1947-48 than in 1946-47, although some plants were able to keep their old rates because of the large quantity used.

Most of the plants studied in both years were able to obtain natural gas; however, this fuel is unavailable in some areas and cannot be furnished at favorable rates in others. In such instances it may be to the advantage of plant operators to use fuel oil since it is also a relatively cheap fuel.

Plants with a large volume of output used fuel more efficiently than did low-volume plants, regardless of the type of fuel used. Economy in the use of fuel from high production results from the necessity of using relatively constant amounts of fuel to heat the dehydration furnace and tube, regardless of the rate of production. In 1947-48, plants producing more than 5,000 hundredweight of dry material had fuel costs of about $0.16 per hundredweight as compared with $0.21 for plants producing less than 5,000 hundredweight. A similar relationship existed in 1946-47.

TABLE 10. Relation of Different Life Expectancies of Dehydrating Plant Equipment to Depreciation and Interest Costs of Dehydrating Sweet Potatoes, 1946-47 and 1947-48 Seasons*

Length of life	1946-47			1947-48		
	Depreciation	Interest	Total processing costs	Depreciation	Interest	Total processing costs
	(Average cost per cwt.)					
7 years**	$0.233	$0.096	$0.993	$0.253	$0.091	$1.012
5 years	0.310	0.094	1.068	0.337	0.085	1.090
10 years	0.176	0.098	0.938	0.192	0.096	0.956
Cwt. dehydrated per plant	4,649			4,510		

*Depreciation was computed by the straight-line method and interest was based on 5 per cent of each year's average value of plant investment. Depreciation on this basis will be a constant total each year, while total interest charges will decrease as plant buildings and equipment depreciate. Interest and depreciation on buildings and interest on land are included in the figures above; however, only charges on plant equipment were computed using different life expectancies.

**The average estimated length of life of plant equipment was 7 years. Depreciation and interest charges used elsewhere in this report were computed on a 7-year basis.

TABLE 11. Relation of Types of Fuel Used for Furnace Heat to Fuel Costs, Louisiana Sweet Potato Dehydrating Plants, 1946-47 and 1947-48 Seasons

Type of fuel	1946-47				1947-48			
	No. of plants	Plants processing		All plants	No. of plants	Plants processing		All plants
		Less than 5000 cwt.	5000 cwt. or more			Less than 5000 cwt.	5000 cwt. or more	
	(Average cost per cwt. (dollars))				(Average cost per cwt. (dollars))			
Natural gas	21	.171	.121	.131	15	.131	.100	.107
Fuel oil	6	.274	.241	.244	4	.294	.270	.276
Butane*	4	.445	.369	.392	2	.612	.538	.562
All plants	31	.241	.187	.197	21	.210	.157	.170

*Higher rates were charged for butane in 1947-48 than in 1946-47.

Efficiency in Use of Labor and Equipment

The efficiency with which labor and equipment were utilized by plant managers materially affected the cost of producing a hundred-pound sack of feed. Those plants with the highest output per man-hour of labor and per hour operated had the lowest per unit labor and total costs (Table 12). By efficient operation a few plants with small production were able to compensate in part for lack of volume. Some plants producing large volumes further cut production costs by efficient utilization of labor and equipment.

In 1947-48, small-volume plants with outputs of 1.75 hundredweight or more of dry material per hour of labor had labor and total per unit costs of $0.214 and $1.395, respectively, as compared with labor costs of $0.335 and total costs of $1.746 for small-volume plants with outputs of less than 1.75 hundredweight per man-hour of labor. High-volume plants with outputs of 1.75 hundredweight or more per hour of man labor had total costs per unit of $0.815, compared with $0.866 for those high-volume plants which used labor less efficiently. Much the same relationship is shown when comparing costs of plants with large and small outputs per hour of operation of the dehydration unit.

Quality of Sweet Potatoes Processed

The type, size, quality, and condition of raw sweet potatoes processed have a considerable effect on the efficiency of dehydrator operation and also on the quality of the dry feed produced. More processing time is required for green and stringy sweet potatoes than for sound, dry potatoes. Decayed, dirty, or muddy sweet potatoes make a low-quality feed and may result in stoppages and breakdowns of the dehydration unit. It is important that sweet potatoes be clean before dehydration and that they be free from decay.

Conditions Necessary for Economical Operation

From the analysis of factors affecting the cost of dehydrating sweet potatoes, it appears that the following conditions are desirable for economical operation: (1) a large volume of sweet potatoes for processing to permit near capacity production; (2) the use of natural gas for furnace fuel, or fuel oil in those areas where natural gas is unavailable; (3) clean, dry sweet potatoes, free from decay; and (4) efficient use of labor and equipment. Labor efficiency is greatly increased when labor can be used full time by continuous operation of the dehydrator or in other work, such as in a storage house or packing shed. If a sufficient quantity of sweet potatoes is available, economies probably can be attained by the use of dehydrating units of large capacity.

TABLE 12. Relation of Operating Efficiency to Labor Costs and Total Processing Costs, Louisiana Sweet Potato Dehydrating Plants, 1946-47 and 1947-48 Seasons

Item	1946-47				1947-48			
	Plants processing				Plants processing			
	Less than 5000 cwt.		5000 cwt. or more		Less than 5000 cwt.		5000 cwt. or more	
	Labor costs	Total costs	Labor costs	Total costs	Labor costs	Total costs	Labor costs	Total costs
	(Average dollars per cwt. dehydrated)							
Dry material per hour of labor								
Less than 1.75 cwt.	0.309	2.010	0.347	0.864	0.335	1.746	0.321	0.866
1.75 cwt. or more	0.237	1.244	0.271	0.721	0.214	1.395	0.200	0.815
Dry material per hour plant operated								
Less than 6.0 cwt.	0.306	1.930	0.346	0.912	0.263	1.542	0.314	0.966
6.0 cwt. or more	0.207	1.091	0.301	0.719	0.253	1.497	0.261	0.783
Average cost of labor per cwt.								
All plants (dollars)			0.317				0.275	
Average output per hour of labor			1.47				1.66	
Average cwt. per hour operated			5.24				5.74	
Average wage rate per hour (dollars)			0.466				0.459	

COMPARATIVE FEEDING VALUES AND COSTS OF SWEET POTATOES AND CORN

Louisiana does not produce sufficient carbohydrate feeds for its growing dairy and livestock industries. Much has been said in recent years about the possibility of growing sweet potatoes as a feed crop to help overcome this deficit. A basic consideration in determining the feasibility of growing sweet potatoes as a feed crop is the relative costs of producing sweet potatoes and other carbohydrates of comparable feeding value.

At present corn is the main carbohydrate feed grown in the state, and most comparisons of the feeding efficiency and costs of production of sweet potatoes for feed have been made with those of corn.

Feeding Value

A comparison of the chemical composition of sweet potato meal and corn meal is shown in Table 13. The comparison is based on typical samples of meal ready for feeding.

The chemical analysis reveals that sweet potatoes furnish more carbohydrates and ash than corn, but are inferior in protein and fat content. Actual feeding tests made by Experiment Stations in various southern states have shown sweet potato meal to be about 90 per cent as efficient in feeding value as corn meal in dairy rations and in rations for fattening beef calves and steers.[1] Sweet potatoes

TABLE 13. Chemical Composition of Sweet Potato Meal and Corn Meal[1]

	Sweet potato meal	Corn meal
	Per cent	Per cent
Water	6.3	14.5
Ash	3.9	1.3
Crude protein	5.0	9.0
Crude fat	1.1	3.9
Crude fiber	3.7	2.4
Nitrogen-free extract	80.0	68.9
Total	100.0	100.0

[1]For detailed results of Louisiana feeding experiments see: Seath, D. M., Rusoff, L. L., Miller, G. D., and Branton, Cecil, *Utilizing Sweet Potatoes as Feed for Dairy Cattle*, Louisiana Bulletin No. 423, Louisiana Agricultural Experiment Station, Baton Rouge, Louisiana, September 1947; and Berwick, Lee, *Dehydrated Sweet Potato Meal for Fattening Steers*, unpublished thesis, Louisiana State University, August 1948.

are an important source of vitamin A because of their high carotene content. Experimental results show that cows fed dehydrated sweet potato meal produce butter of a deeper yellow color and higher vitamin A content than cows fed yellow corn. Thus it appears that sweet potato meal compares favorably with corn in feeding efficiency. In the raw form about 3.5 bushels of sweet potatoes are equivalent in feeding value to one bushel of corn. Sweet potato vines make a high-quality roughage when cured, but so far they have not been utilized to any great extent.

Costs

The costs of producing sweet potatoes for feed, including a dehydration charge, and corn are shown in Table 14. These costs represent an average of findings in the St. Landry and Lafayette Parish sweet potato areas and the West Carroll area for the 1946 crop year.[2] The cost of producing a quantity of sweet potatoes equal in feeding value to one bushel of corn amounted to $2.19 compared with production costs of $1.24 per bushel of corn. It might be pointed out that

TABLE 14. Comparative Costs of Producing Sweet Potatoes and Corn on Selected Farms in Commercial Sweet Potato Producing Areas in Louisiana, 1946*

	Sweet Potatoes	Corn
Cost of man labor (per acre)	$36.27	$ 9.36
All other costs (per acre)	33.43	11.16
Total production costs (per acre)	$69.70	$20.52
Average yields (bu. per acre)	161	16.5
Cost of production per bushel	$ 0.43	$ 1.24
Bushels of corn equivalent**	46	16.5
Cost of production per bushel of corn equivalent	$ 1.52	$ 1.24
Dehydration cost per bushel of corn equivalent***	.67	—
Total cost per bushel of corn equivalent	$ 2.19	$ 1.24

*Based on an average of costs of production of sweet potatoes and corn in the St. Landry, Lafayette, and West Carroll commercial sweet potato areas as reported by Danielson and McCrory.

**About 3.5 bushels of raw Porto Rico sweet potatoes are equal in feeding value to one bushel of corn.

***The average charge to farmers for dehydrating sweet potatoes was $1.09 per hundredweight. About 5.7 bushels of the Porto Rico variety are required to furnish 100 pounds of dry matter. With the use of starch or feed varieties which average 37 to 40 per cent solids, it may be possible to reduce both production and dehydrating costs of a bushel of corn equivalent as much as 20 per cent because only about 4.7 bushels of raw sweet potatoes would be required to make 100 pounds of dry feed.

[2]For detailed information see: McCrory, Eugene, *Management Problems Involved in the Organization and Operation of Farms in the Sweet Potato Area of St. Landry and Lafayette Parishes, Louisiana, 1946*, unpublished thesis, Louisiana State University, 1947; and Danielson, Carl B., *Enterprise Combination Problems Involved in the Management of Sweet Potato Farms in West Carroll Parish, Louisiana, 1946*, unpublished thesis, Louisiana State University, 1947.

these costs were incurred in areas where sweet potatoes are a major cash crop whereas corn is relegated to a secondary role. Sweet potato yields are considerably higher than the state average, while corn yields are only slightly greater than the average for the state as a whole.

Labor requirements for producing sweet potatoes are considerably higher than for corn. The cost of man labor necessary to produce an acre of sweet potatoes was $36.27 compared with $9.36 for corn on the farms studied. Both crops were produced mainly by hand methods and the use of mule equipment. Because of the nature of crops, about 125 hours of man labor were required to grow an acre of sweet potatoes, while corn needed less than 40 man hours.

In recent years, serious attempts have been made to adapt mechanized equipment for sweet potato transplanting and harvesting operations. By the use of transplanters, diggers, and tractor equipment a great reduction in hours of labor required for production may be realized. It is possible to reduce the man hours of labor necessary to produce an acre of sweet potatoes from 125 to about 45 by mechanizing operations (Table 15). The greatest reductions are possible in planting and harvesting. Labor requirements may be further reduced by eliminating the hoeing of sweet potatoes produced for stock feed. The elimination of this operation probably would not affect yields to a very large extent unless the amount of grass and weeds was sufficient to thwart early growth and development of the vines.

TABLE 15. Estimated Labor Requirements for Producing Sweet Potatoes in Louisiana Using Mechanized Equipment*

Operation	Man-hours per acre	Tractor-hours per acre
Plant production	4.3	—
Land preparation	2.1	2.1
Planting	9.0	1.3
Hoeing	12.0	—
Cultivation	2.4	2.4
Harvest	15.0	3.0
Total hours per acre using mechanized equipment	44.8**	8.8
Total man-hours per acre using hand methods and mule equipment	125	
Total mule-hours using hand methods and mule equipment	40	

*Based on unpublished data and estimates by agricultural engineers and farm management specialists of the Louisiana Agricultural Experiment Station.

**It may be possible to reduce further labor requirements if a more economical method of obtaining plant stands than by transplanting vines from beds is developed. Hoeing may not be necessary in many instances.

The effect of mechanization on the cost of producing sweet potatoes is shown in Table 16. Estimates of cost were made using different acreage and yield bases. The previous illustration of comparative costs of sweet potatoes and corn in Table 14 was based on an average acreage of 7.4 and an average yield of 161 bushels found on the farms studied. It is evident that acreages and yields of this size are insufficient to permit mechanization of operations because of the high cost of using specialized equipment. In fact, on such a small scale and low-yield basis, the use of hand methods and mule equipment results in production costs of $2.19 per bushel of corn equivalent, or 8 cents less than costs of mechanized operations.

TABLE 16. Estimated Costs of Production of Sweet Potatoes Using Mechanized Equipment Under Varying Acreage and Yield Bases, 1946 Price-Cost Conditions

	Basis of estimate			
	7.4 acres 161 bushel yield*	30 acres 161 bushel yield	30 acres 200 bushel yield	30 acres 300 bushel yield
	(Cost per acre)			
Man labor	$13.44	$13.44	$13.44	$13.44
Tractor use**	5.54	5.54	5.54	5.54
Equipment use***	42.03	10.37	10.37	10.37
All other costs	12.00	14.00	15.00	18.00
Total costs	$73.01	$43.35	$44.35	$47.35
Cost per bushel	$ 0.45	$ 0.27	$ 0.22	$ 0.16
Bushels of corn equivalent	46	46	57	86
Cost of production per bushel of corn equivalent	$ 1.59	$ 0.94	$ 0.78	$ 0.55
Dehydration cost per bushel of corn equivalent	$ 0.67	$ 0.67	$ 0.67	$ 0.67
Total cost per bushel of corn equivalent	$ 2.27	$ 1.61	$ 1.45	$ 1.22

*Average acreage and yield on sweet potato farms studied by Danielson and McCrory.

**Tractor costs based on data supplied by F. D. Barlow, Associate Economist, Louisiana Agricultural Experiment Station.

***Includes depreciation, interest, and upkeep on transplanter, vine cutter, and digger. Basic data for estimates supplied by Wiley Poole, Associate Agricultural Engineer, Louisiana Agricultural Experiment Station.

On larger acreages and yields, the costs of producing sweet potatoes probably would be materially reduced by the use of mechanized equipment. However, 30 acres of sweet potatoes with a yield of 300 bushels per acre produced under mechanized conditions may be required before costs of production, including a dehydration charge at present rates, are lowered below the cost of producing a bushel of corn grown mainly by hand methods on a small-acreage and low-yield basis. Not considered in these estimates is the possibility of improving corn production and reducing costs by use of hybrid seed, better cultural practices, and fertilization.

The dehydration charge is responsible to a large extent for the high cost of producing sweet potatoes for feed. The dehydration cost used is based on the cash charge for dehydration for cash-custom work which so far has barely covered the operating costs of dehydrating plants. It is uncertain whether average dehydration charges can be lowered very substantially in the future. One possible means of reducing these costs is through the pooling of sweet potatoes by a group of farmers to assure a large volume and efficient use of dehydration equipment. Efficient plants with large volumes in 1946-47 and 1947-48 processed 3.5 bushels of sweet potatoes, which is equivalent in feeding value to a bushel of corn, for less than $0.50 compared with $0.67 for all plants studied.

It appears from the preceding analysis that probably the major role of dehydration will, for some time, be of a salvage nature in the commercial production of sweet potatoes for table use and canning. When suitable sweet potato machinery is perfected and more economical methods of getting plant stands are developed, more farmers may be able to grow sweet potatoes for feed advantageously. But since mechanized equipment requires considerable investment, small growers may only be able to use it on a custom or cooperative basis. One advantage in favor of producing sweet potatoes for feed is that a greater volume of carbohydrate feed can be produced on a smaller acreage than in the case of corn. Also, in some areas the soil may be better adapted to the production of sweet potatoes.

SUMMARY

The 52 sweet potato dehydration plants established in Louisiana in the last three years enable farmers, shippers, and processors to dispose of sweet potatoes which are undesirable for table stock or canning by converting them into a good carbohydrate feed for livestock. About 9 per cent of the 1946 crop and 10 per cent of the 1947 crop of sweet potatoes were dehydrated for feed. Dehydration not only affords the sweet potato industry an income from a portion of the crop which often has proved troublesome to dispose of in the past, but in addition it helps to reduce the state's feed deficit and aids greatly in the sweet potato weevil control program.

A study of the operations of sweet potato dehydration plants in the 1946-47 and 1947-48 seasons showed that the following conditions are necessary for economical operation: (1) a large volume of sweet potatoes for processing; (2) the use of natural gas for furnace fuel, or fuel oil in those areas where natural gas is unavailable; (3) clean, dry sweet potatoes relatively free from decay; and (4) efficient use of labor and equipment.

The volume of sweet potatoes processed by dehydrating plants was the most important factor affecting both per unit operating costs and net income, mainly because some items of cost, such as depreciation, are relatively fixed in amount regardless of production. In 1947-48, plants processing 6,000 hundredweight or more of feed had an average net income of $3,733 per plant and operating costs of only $0.80 per hundredweight, while plants processing less than 2,500 hundredweight suffered losses amounting to $792 per plant and had operating costs of $1.78 per hundredweight of feed produced. Total costs for all plants averaged $0.99 per hundredweight of feed produced in 1946-47 and $1.01 in 1947-48. Of 31 plants studied in 1947-48, 15 processed less than 2,500 hundredweight of feed during the season. Location, with respect to a heavy producing area, is an important factor affecting the success of a plant in securing sufficient volume of raw material for efficient operation. Dehydrators located at the fringes of producing areas generally were forced to operate at only fractional capacity. In such cases, the possibility of dehydrating forage crops to increase the volume of plant operations should not be overlooked.

The rated productive capacity of most dehydrating plants in the state is from 600 to 800 pounds of dry matter per hour, although a few are larger and a few smaller. Most plants reported capital investment of from $9,500 to $10,000.

About two-thirds of the processing done by dehydrators in the two years studied was on a cash-custom basis whereby farmers delivered their sweet potatoes to the dehydrating plant and paid a fee of about one dollar for each 100 pounds of dry material received. Dehydrators also obtained raw materials for processing by cash purchases of low-grade sweet potatoes from farmers and others, from shipping and cannery salvage operations, by toll-custom work, and by growing their own sweet potatoes.

The dehydrated sweet potatoes retained by farmers were used on the farm to feed dairy cattle and other classes of livestock, including beef cattle, chickens, hogs, and work stock. Dehydrators sold their product mainly to dairymen, and to a lesser extent to feed dealers and feed mills.

Although dehydrated sweet potatoes compare favorably with corn and other carbohydrate feeds in feeding value, it is uneconomical at existing levels of production and dehydration costs for most farmers to grow sweet potatoes primarily as a feed crop. The major role of dehydration will continue for some time to be that of a salvage nature in the commercial production of sweet potatoes for table use. It is quite possible that with high-yielding feed varieties

now available, improved machinery, and the development of more economical methods of securing plant stands, such as by planting small, whole potatoes or seed pieces, some farmers will be able to grow sweet potatoes for feed at an advantage.

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